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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,474	12/05/2001	Tsung-Wen Chiu	7268U-000001	3249

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EXAMINER
LE, HOANGANH T

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 01/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
10/006,474	CHIU et al
Examiner	**Art Unit**
HOANGANH LE	2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-20* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2.The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-20 contain the trademark/trade name " FR4". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a dielectric material and,

accordingly, the identification/description is indefinite.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-7, 10-16, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Holshouser et al (the US Patent No. 6,107,970).

The Holshouser et al reference teaches in figures 3-5 a dual-band FR4 chip antenna, wherein the dual-band FR4 chip antenna has a first operating band and a second operating band, and the dual-band FR4 chip antenna comprises: an FR4 chip base 40, wherein the FR4 chip base is made of an FR4 material (col. 5, line 22); a meandering radiating metal line 42; and a connecting point 52, which is used for connecting the meandering radiating metal line to a signal transmission line. The total length of the meandering radiating metal line 42 is about 1/4 wavelength of the central frequency in the first operating band (Col. 6, line 23). The shape of the chip base is selected from a group consisting of a rectangular prism, a square prism and a cylinder (figure 4). The dielectric

constant of the FR4 chip base is between about 4 and about 5 (col. 5, line 24). The meandering radiating metal line is formed on at least two surfaces of the FR4 chip base (figures 4-5). The meandering radiating metal line further comprises: a lower metal line, wherein the lower metal line is located on a lower surface of the FR4 chip base; an upper metal line, wherein the upper metal line is located on an upper surface of the FR4 chip base; and a connecting metal line, wherein the connecting metal line is located on one side of the FR4 chip base (figures 4-5). The meandering radiating metal line has a plurality of widths (figures 4-5). The width of the meandering radiating metal line is a fixed value (figures 3-5). The meandering radiating metal line is formed inside the FR4 chip base (figure 7A). The antenna is mounted on a microwave substrate having a ground surface, and one portion of an area where the microwave substrate contacts the dual-band FR4 chip antenna is not covered with the ground surface, and the signal transmission line is located on the microwave substrate (figures 2A-2B).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the

manner in which the invention was made.

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (the Pub No. US 2003/0001793) in view of Holshouser et al (the US Patent No. 6,107,970).

The Park reference teaches in figures 3-4 a dual-band FR4 chip antenna, wherein the dual-band chip antenna has a first operating band and a second operating band, and the dual-band chip antenna comprises: an chip base 100; a meandering radiating metal line 200; and a connecting point, which is used for connecting the meandering radiating metal line to a signal transmission line. The total length of the meandering radiating metal line 200 is about 1/4 wavelength of the central frequency in the first operating band. The shape of the chip base is selected from a group consisting of a rectangular prism, a square prism and a cylinder (figure 3). The meandering radiating metal line is formed on at least two surfaces of the FR4 chip base (figure 3). The meandering radiating metal line further comprises: a lower metal line, wherein the lower metal line is located on a lower surface of the chip base; an upper metal line, wherein the upper metal line is located on an upper surface of the chip base; and a connecting metal line, wherein the connecting metal line is located on one side of the chip base (figure 3). The meandering radiating metal line has a plurality of widths (figure 3). The width of the meandering radiating metal line is a fixed value (figures 3-4). The meandering radiating metal line is formed inside the chip base

(figure 7). The antenna is mounted on a microwave substrate having a ground surface, and one portion of an area where the microwave substrate contacts the dual-band chip antenna is not covered with the ground surface, and the signal transmission line is located on the microwave substrate (figure 7). The lower metal line comprises: a first lower horizontal line, wherein one end of the first lower horizontal line is vertically connected to the transmission line; a first lower vertical line, wherein one end of the first lower vertical line is connected to the other end of the first lower horizontal line, and a second lower horizontal line, wherein one end of the second lower horizontal line is connected to the other end of the first lower vertical line, and the other end of the second lower horizontal line is connected to one end of the connecting metal line. The upper metal line comprises: a first upper horizontal line, wherein one end of the first upper horizontal line is connected to the other end of the connecting metal line; a first upper vertical line; wherein one end of the first upper vertical line is connected to the other end of the first upper horizontal line; a second upper horizontal line, wherein one end of the second upper horizontal line is connected to the other end of the first upper vertical line; a second upper vertical line, wherein one end of the second upper vertical line is connected to the other end of the second upper horizontal line, and the second upper vertical line is extended to about the middle of one side of the upper surface of the chip base; and a third upper horizontal line, wherein one end of the third upper horizontal

line is connected to the other end of the second upper vertical line, and the length of the third upper horizontal line is shorter than the first upper horizontal line and the second upper horizontal line. Park does not teach the chip base being made of an FR4 material and the dielectric constant of the FR4 chip base being between about 4 and about 5.

The Holshouser et al reference teaches in figures 3-5 the use of a base 40 being made of an FR4 material (col. 5, line 22) and the dielectric constant of the FR4 chip base being between about 4 and about 5 (col. 5, line 24) in order to be resistant to damage and failure resulting from impact forces (col. 1, lines 62-63).

Since one of ordinary skill in the art would recognize the benefit of improving the characteristics of the antenna, it would have been obvious to provide Park with the chip base being made of an FR4 material and the dielectric constant of the FR4 chip base being between about 4 and about 5 as taught by Holshouser et al.

Correspondence

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Hoanganh Le whose telephone number is *(703) 308-4921.*

9. Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is *(703) 308-0956.*

10. Papers related to Technology Center 2800 applications **only** may be submitted to

Technology Center 2800 by facsimile transmission. Any transmission not to be considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is *(703) 308-7722 or (703) 308-7724.*

Hoanganh Le
Primary Examiner
Art Unit 2821
January 23, 2003

Hoanganh Le
Primary Examiner